ONTARIO MINISTRY OF ENVIRONMENT
3693600023314

OPERATING SUMMARY

CHATHAM

WATER POLLUTION CONTROL PLANT

1973

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Chatham : water pollution control plant.
81449

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Honourable William G. Newman

DEPUTY MINISTER
E. Biggs

ASSISTANT DEPUTY MINISTER
REGIONAL OPERATIONS
J. Barr

REGIONAL OPERATIONS DIVISION

DIRECTOR, SOUTHWESTERN REGION
D. McTavish

MANAGER, UTILITY OPERATIONS
A. Ladbrooke

CHATHAM

WATER POLLUTION CONTROL PLANT

operated for

THE CITY OF CHATHAM

by the

MINISTRY OF THE ENVIRONMENT

1973 ANNUAL OPERATING SUMMARY

prepared by
Plant Performance Unit
TECHNICAL SERVICES BRANCH
T. Cross, Director

Environment Ontario
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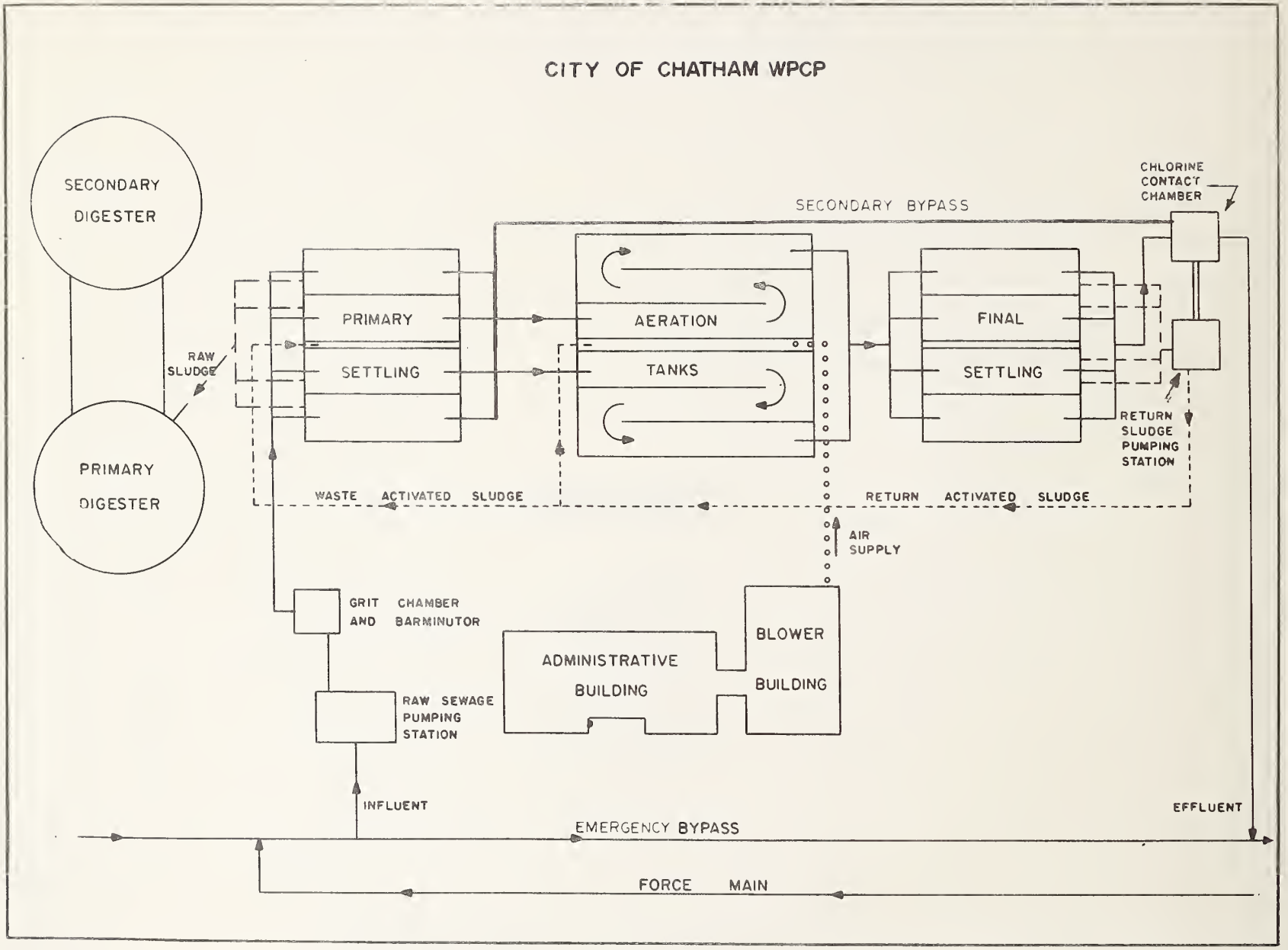

CITY OF CHATHAM WPCP
SECONDARY DIGESTER
PRIMARY DIGESTER
RAW SLUDGE
PRIMARY SETTLING
AERATION TANKS
FINAL SETTLING
SECONDARY BYPASS
CHLORINE CONTACT CHAMBER
RETURN SLUDGE PUMPING STATION
WASTE ACTIVATED SLUDGE
RETURN ACTIVATED SLUDGE
AIR SUPPLY
GRIT CHAMBER AND BARMINUTOR
ADMINISTRATIVE BUILDING
BLOWER BUILDING
RAW SEWAGE PUMPING STATION
INFLUENT
EFFLUENT
EMERGENCY BYPASS
FORCE MAIN

DESIGN DATA

PROJECT City of Chatham WPCP

PROJECT NO. 2-0102-62

TREATMENT Activated Sludge

DESIGN FLOW 4.5 mgd

DESIGN POPULATION 45,000

BOD - Raw Sewage 250 mg/l
- Removal 90%

SS - Raw Sewage 250 mg/l
- Removal 90%

RAW SEWAGE

Screening

- One manually-cleaned bar screen

Pumps

Type: Worthington
Size: Three 3750 gpm @ 47' tdh
One 3750 gpm @ 47' tdh
(electric & standby diesel)

PRIMARY TREATMENT

Grit Removal

Type: Aerated, with clamshell bucket
Size: One 27' x 14' x 11 2/3 (avg)
(27,450 gal)
Retention: 8.8 min
Air Supply: One Sutorbilt

Comminution

Type: Barminutor
Size: Two model C

Primary Sedimentation

Type: Jeffrey, two-pass
Size: Two 80' x 32' x 12' (avg)
(382,000 gal)
Retention: 2.05 hr
Loading: Surface, 878 gal/ft^2/day
Weir, 9400 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Diffused air; triple pass
Size: Two 130' x 63' x 14'
(1.43 mil gal)
Retention: 7.6 hr

Diffusers

Type: Schumacher tubes
125 per pass on 12" centres

Air Supply

Type: Sutorbilt
Size: Three 2500 cfm

Secondary Sedimentation

Type: Jeffrey
Size: Two 120' x 32' x 12' (avg)
(574,000 gal)
Retention: 3.08 hours
Loading: Surface, 586 gal/ft^2/day
Weir, 8780 gal/ft/day

CHLORINATION

Type: F & P
Size: One 2000 lb/day
One 400 lb/day

Chlorine Contact Chamber

Size: One 33.6' x 30' x 10' (62,300 gal)
Retention: 22 min

OUTFALL

- 1,025' to Thames River

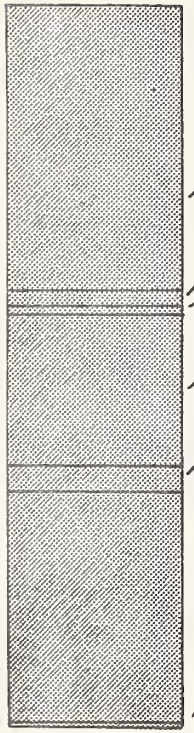
SLUDGE HANDLING

Digestion System - Two-stage
Primary--
Type: Gas mixed, fixed cover
Size: One 65' dia x 25' (83,000 cu ft
or 0.52 mil gal)

Secondary--
Type: Fixed cover
Size: One 65' dia x 25' (82,000 cu ft
or 0.51 mil gal)

ANNUAL COSTS

1973 OPERATING COSTS



SALARIES & WAGES	39 %
EMPLOYEE BENEFITS	2 %
TRANSPORTATION & COMMUNICATIONS	1 %
SERVICES	26 %
SUPPLIES & EQUIPMENT	32 %
AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS	NIL
TRANSFER PAYMENTS	NIL
OTHER TRANSACTIONS	<1 %

YEARLY OPERATING COSTS

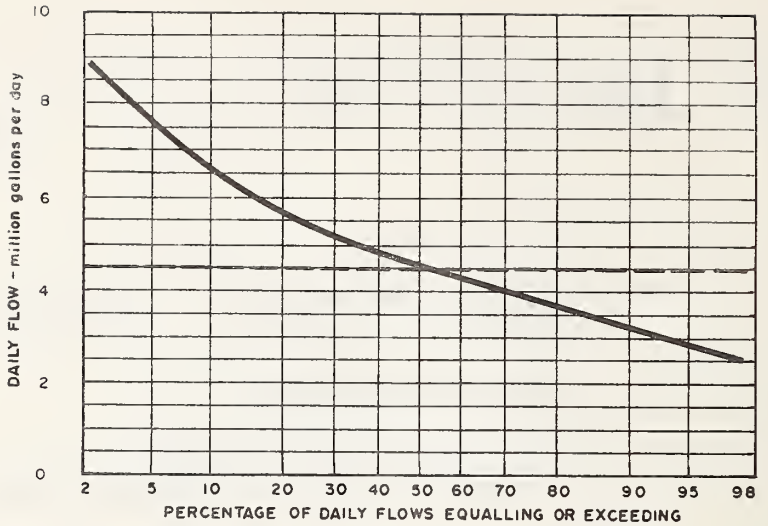
YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS $/M.G.	UNIT COSTS ¢/lb BOD
1968	1380	$ 137, 296	99	4
1969	1494	149, 745	100	4
1970	1355	153, 786	117	5
1971	1214	193, 158	159	8
1972	1558	205, 305	132	8
1973	1727	264, 380	153	9

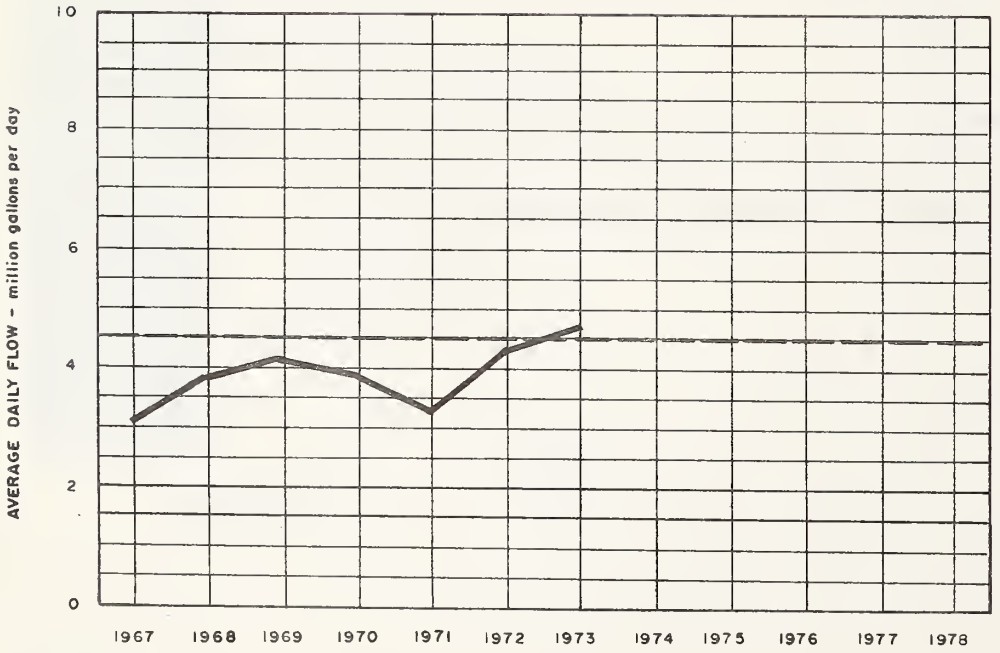
OPERATING EXPENDITURES

SALARIES AND WAGES	$101,983
EMPLOYEE BENEFITS	5,935
TRANSPORTATION & COMMUNICATIONS	3.219
SERVICES	69,244
SUPPLIES AND EQUIPMENT	83,961
ACQUISITION/CONSTRUCTION OF PHYSICAL ASSETS	0
TRANSFER PAYMENTS	0
OTHER TRANSACTIONS	38
TOTAL	$264,380

PROCESS DATA

FLOWS



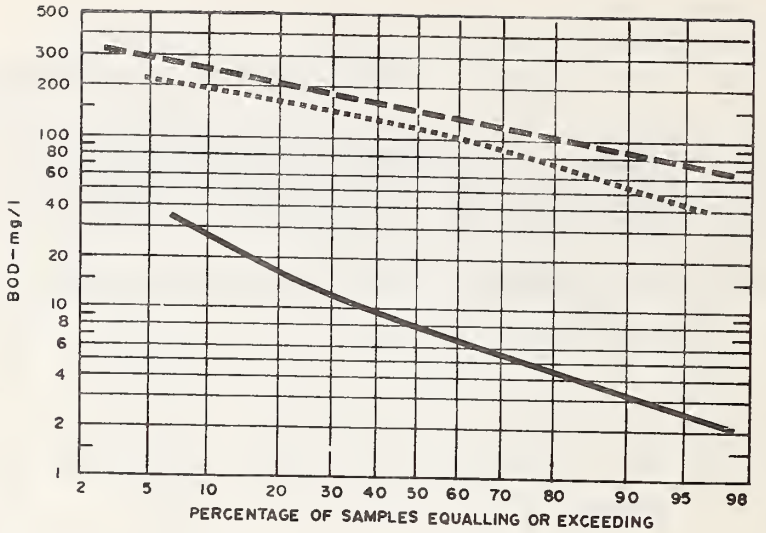


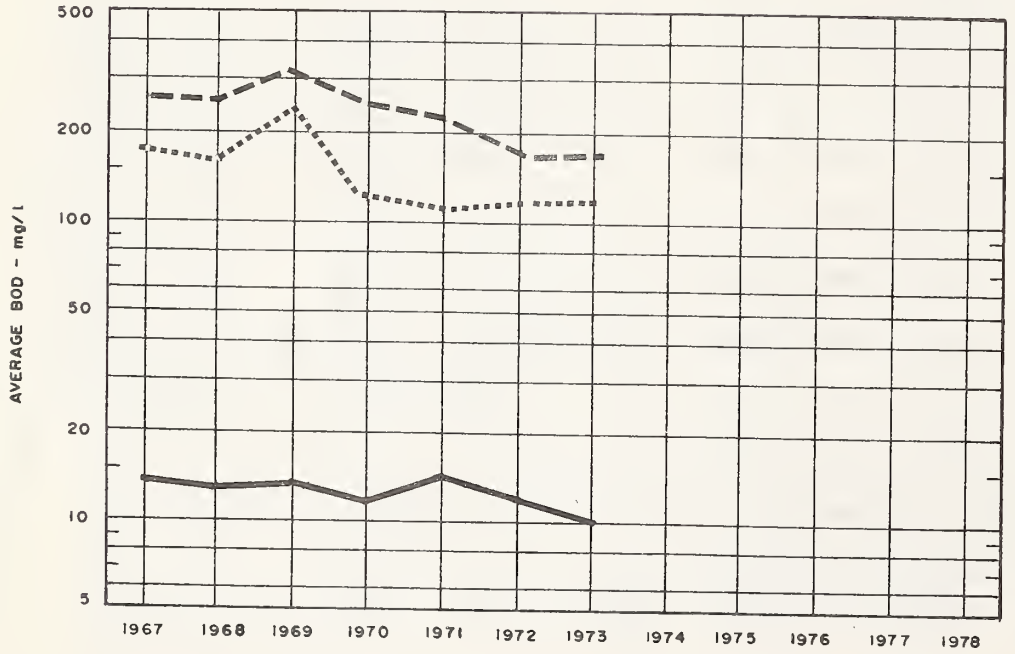
DESIGN CAPACITY _ _ _ _ _ _ _ _

PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10^3 pounds	mg/l	mg/l	%	10^3 pounds	mg/l P	mg/l P
JAN	143	4.6	8.4	158	7	96	216	208	16	92	275	27.0	7.6
FEB	115	4.1	6.0	197	14	93	211	267	14	95	292	25.0	4.0
MAR	218	7.0	13.1	120	21	82	216	270	68	75	440	5.2	8.0
APR	144	4.8	7.1	139	9	93	187	194	6	97	271	22.0	3.9
MAY	133	4.3	8.7	209	7	97	269	263	5	98	344		
JUNE	143	4.8	7.2	182	10	95	246	251	12	95	341	18.0	6.0
JULY	124	4.0	7.5	163	6	96	195	238	2	99	293	18.0	7.1
AUG	139	4.5	7.4	149	5	97	200	295	2	99	407	17.0	6.0
SEPT	194	6.5	8.0	158	17	89	273	240	33	86	401		
OCT	121	3.9	5.2	197	7	96	230	276	10	96	321	6.5	5.3
NOV	124	4.1	8.0	308	6	98	373	277	15	95	324	14.0	7.8
DEC	129	4.1	7.8	160	4	97	199	241	5	98	303	21.0	8.3
TOTAL	1727	-	-	-	-	-	2815	-	-	-	4012	-	-
AVG.		4.7	MAXIMUM 13.1	176	10	94	235	252	16	94	334	16.0	6.4
No. of Samples	-	-	-	97	97	-	-	255	257	-	-	10	10

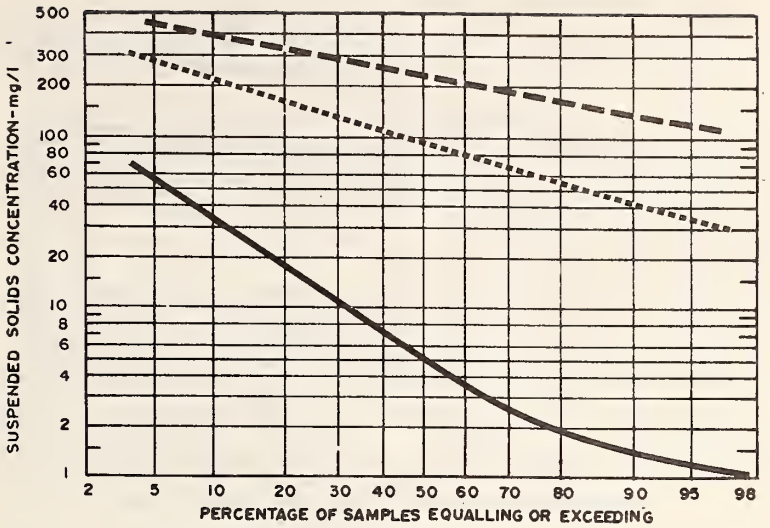
BIOCHEMICAL OXYGEN DEMAND

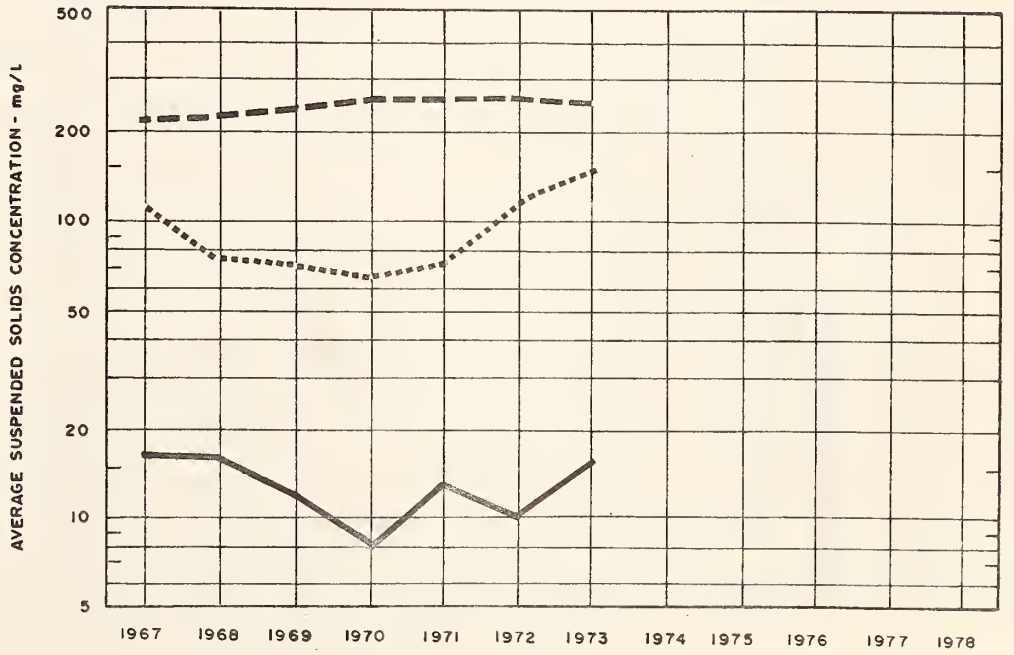




PLANT INFLUENT
PRIMARY EFFLUENT
PLANT EFFLUENT

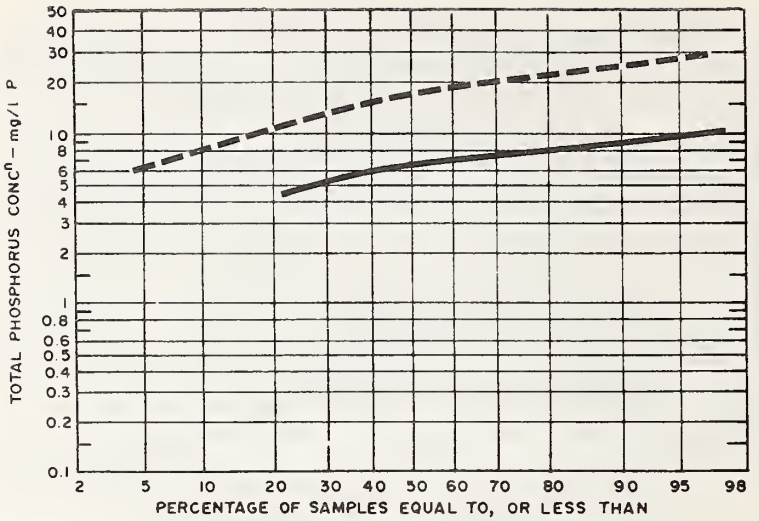
SUSPENDED SOLIDS

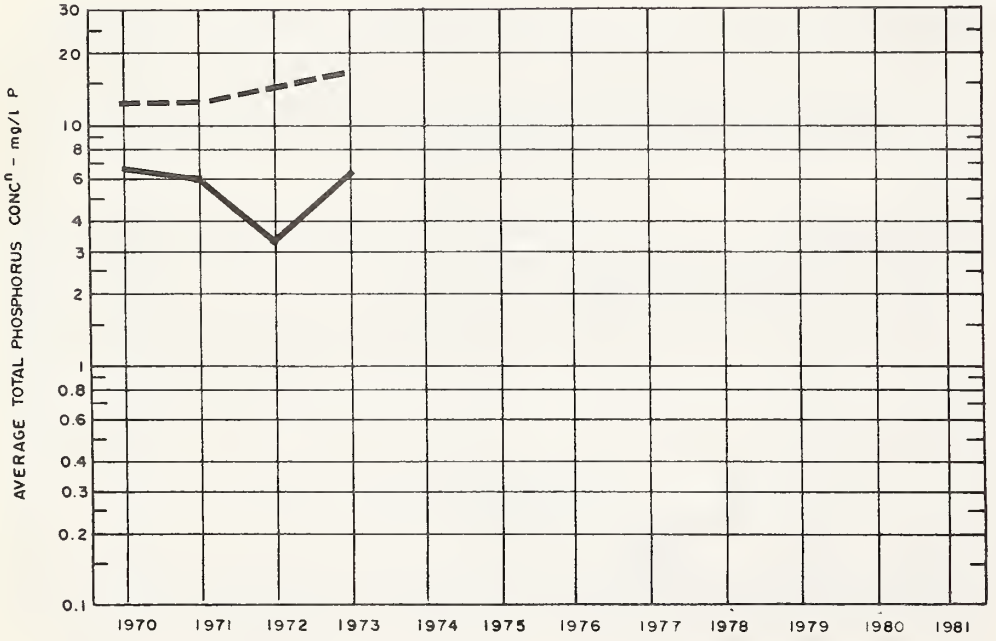




PLANT INFLUENT
PRIMARY EFFLUENT
PLANT EFFLUENT

PHOSPHORUS

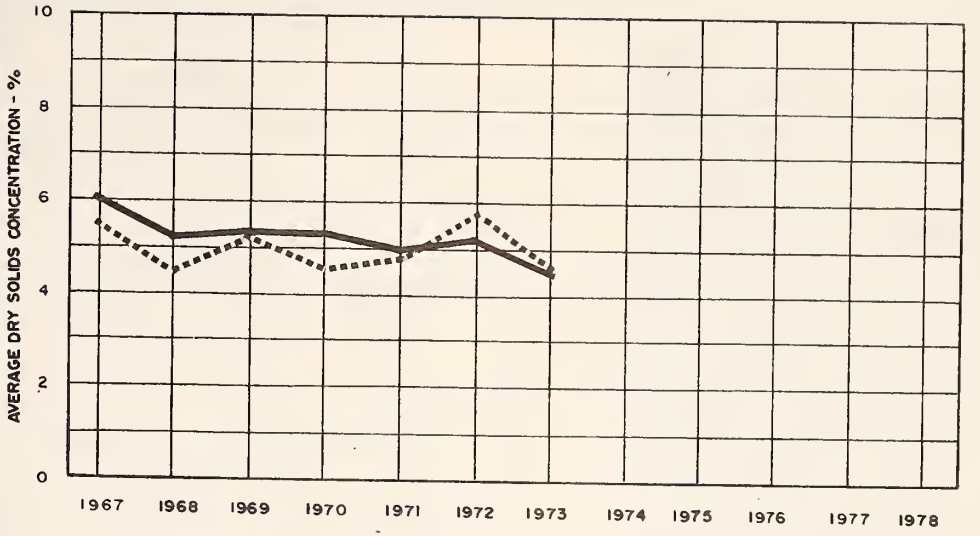


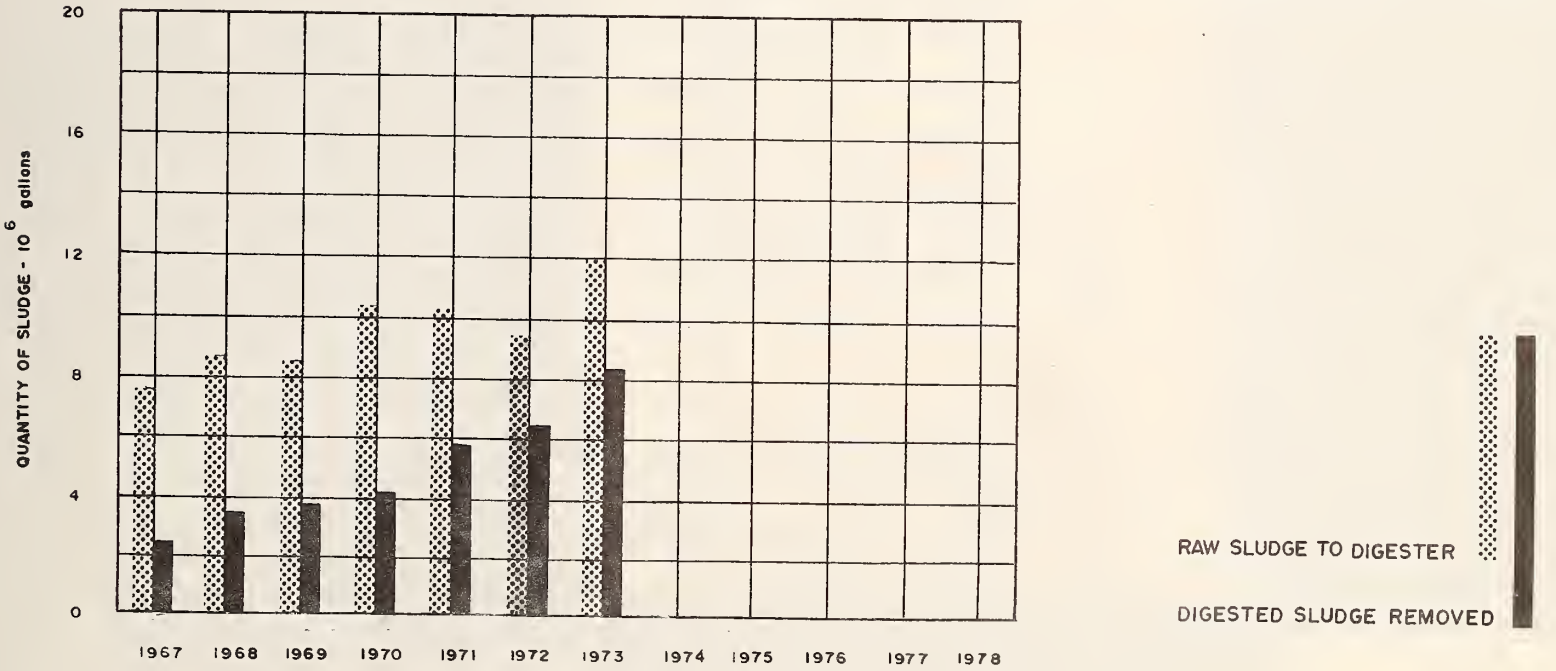


PLANT INFLUENT

PLANT EFFLUENT

DIGESTION


AVERAGE DRY SOLIDS CONCENTRATION - %
0
2
4
6
8
10
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
RAW SLUDGE
DIGESTED SLUDGE


QUANTITY OF SLUDGE - 10^6 gallons
0
4
8
12
16
20
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
RAW SLUDGE TO DIGESTER
DIGESTED SLUDGE REMOVED

TREATMENT DATA

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
									RAW SLUDGE			DIGESTED SLUDGE			SUPER-NATANT	
	QUANTITY REMOVED cubic feet	Cl_2 USED 10^3 pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day^{-1}	AIR 1000 ft^3 / lb BOD	QUANTITY 10^3 gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10^3 gallons	TOTAL SOLIDS %	VOL. SOLIDS %	T. S. %	AMOUNT HAULED cubic yards
JAN	252	0		109	114	3580	0.10	1.5	740	6.8	49	392	4.9	41	2.6	2337
FEB	209	0		135	194	5730	0.07	1.1	1348	4.1	47	789	3.6	39	2.8	4687
MAR	312	0		134	213	3480	0.19	0.7	792	6.2	38	737	5.7	32	2.0	4378
APR	0	0		106	73	3350	0.10	1.2	522	5.4	48	564	4.4	35	2.3	3356
MAY	202	2.8	4.0	137	107	2870	0.13	1.2	826	4.5	54	924	3.9	43	6.8	5489
JUNE	179	5.1	3.6	120	80	2870	0.13	1.6	1374*	5.6	47	645	5.1	40	1.1	3833
JULY	129	4.6	3.7	72	85	2460	0.08	2.6	635	4.4	52	641	5.4	38	1.4	3805
AUG	173	3.5	2.5	80	90	2040	0.12	1.4	149*	5.5	50	593	5.9	46	1.0	3535
SEPT	300	6.3	3.2	71	120	2220	0.14	2.6	1257*	3.1	61	972	4.5	46	0.4	5767
OCT	154	3.8	4.2	175	115	2240	0.19	1.3	1304*	3.1	52	598	3.8	47	0.2	3556
NOV	280	0		158	119	2760	0.20	1.4	1521	3.2	61	703	3.4	46	0.7	4177
DEC	186	0		105	75	2080	0.14	1.5	1551	3.5	57	735	3.7	43	1.4	4365
TOTAL	2376	26.1	-	-	-	-	-	-	12019	-	-	8293	-	-	-	49285
AVG.	1.4 cu.ft/mil gal		3.5	119	147	2970	0.13	1.5		4.6	51	691	4.5	41	1.9	4107

*Meter inaccurate

MAY 2 1975
MAY 16 1975

ONTARIO. MINISTRY OF THE ENVIRONMENT. REGIONAL OPERATIONS DIVISION.
CHATHAM WATER POLLUTION CONTROL PLANT. (ANNUAL OPERATING SUMMARY)
1973

TD227/C43/W38/1973/MOE

DATE	ISSUED TO
MAY 2 - 1975	C1 ASJU
MAY 16 1975	Roberto Jaen Collins-Chatham

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Chatham water
pollution control asju
c.1 a aa

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